

3.21 Complex Numbers

Name _____ Date _____ Period _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Perform the indicated operation and write the answer in the form $a + bi$, where a and b are real numbers.

1) $(3 - 3i) + (4 + 5i)$ 1) _____

2) $(1 - i) - (3 + 2i)$ 2) _____

3) $-6i(3 - 2i)$ 3) _____

4) $(2 - 3i)(4 + 6i)$ 4) _____

5) $(\sqrt{3} - i)(\sqrt{3} + i)$ 5) _____

6) $(3 + 4i)^2$ 6) _____

Evaluate the indicated power of i .

7) i^{17} 7) _____

8) i^{98} 8) _____

Find the product of the complex number and its conjugate.

9) $3 - 9i$

9) _____

10) $\frac{1}{2} + 2i$

10) _____

Write the quotient in the form $a + bi$.

11) $\frac{1}{2 - i}$

11) _____

12) $\frac{-3i}{1 - i}$

12) _____

Write the expression in the form $a + bi$, where a and b are real numbers.

13) $\sqrt{-4} - \sqrt{-9}$

13) _____

14) $\sqrt{-6} \cdot \sqrt{-6}$

14) _____

15) $\sqrt{-2} \cdot \sqrt{-50}$

15) _____

16) $\frac{-2 + \sqrt{-20}}{2}$

16) _____